OIPE
MAR 2 8 2005
PATENT & TRADEMARK OFFICE

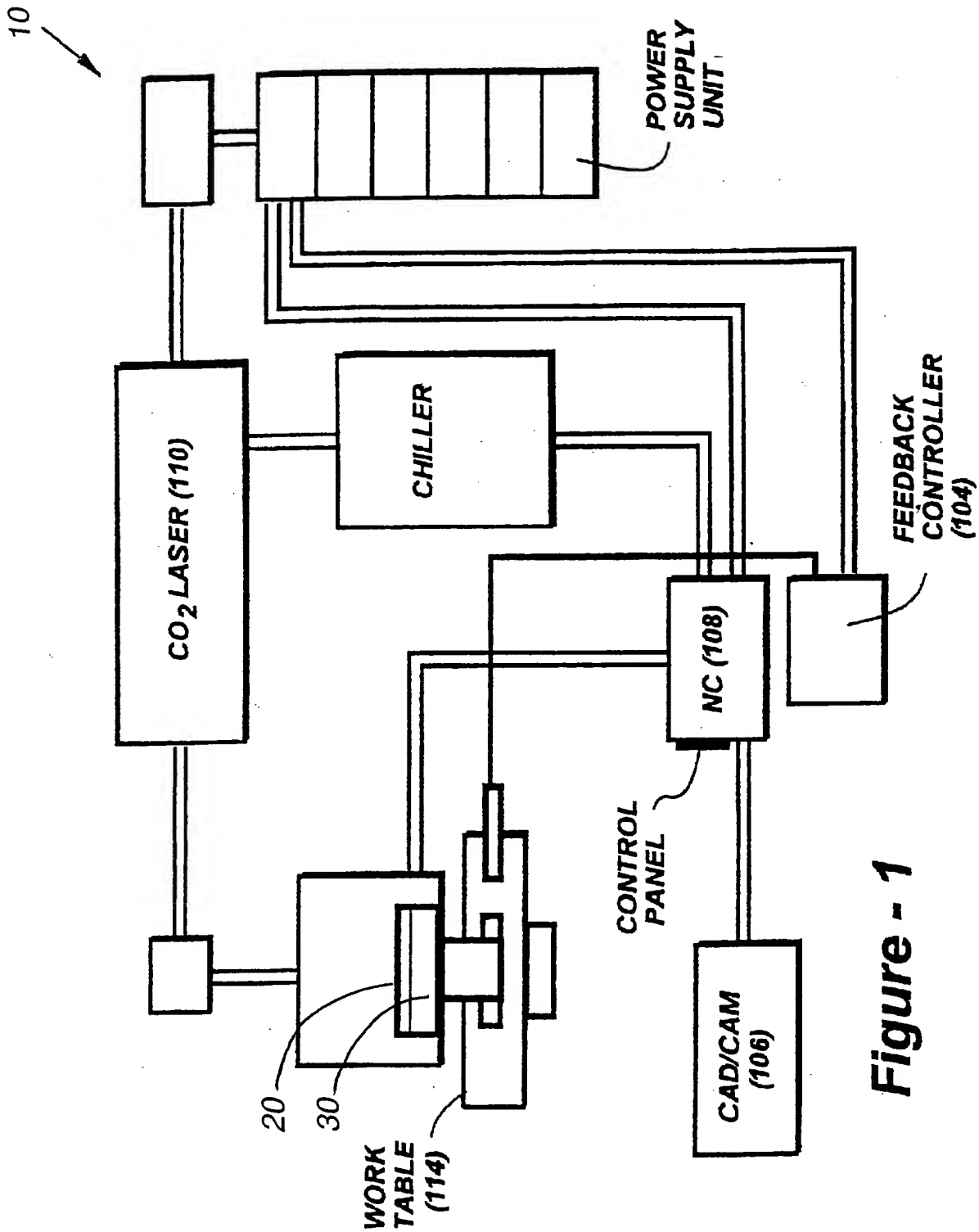

Figure - 1

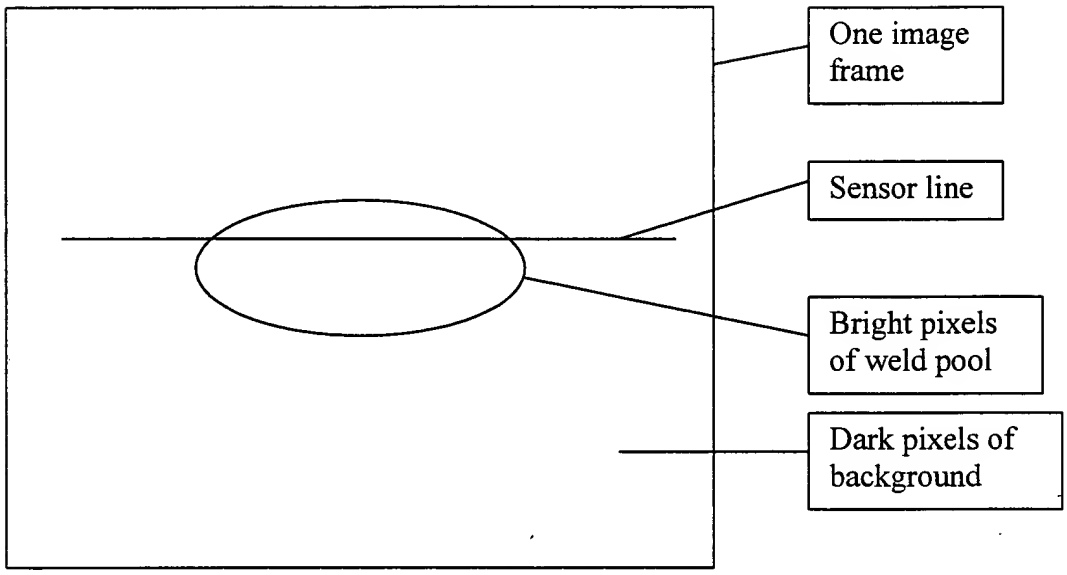
One image frame
Sensor line
Bright pixels of weld pool
Dark pixels of background

FIGURE 2

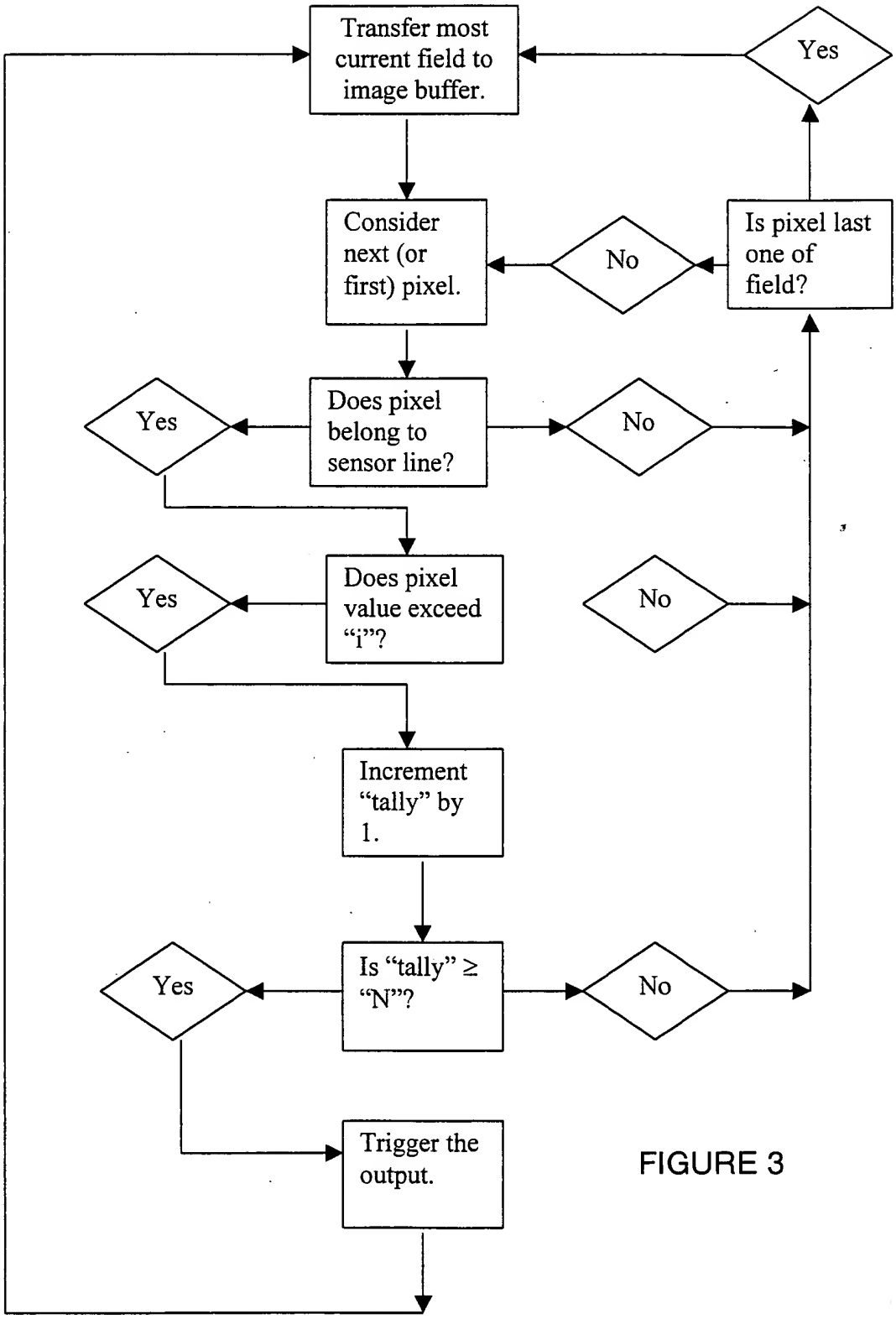
Transfer most current field to image buffer.
Yes
Consider next (or first) pixel.
No
Is pixel last one of field?
Yes
Does pixel belong to sensor line?
No
Yes
Does pixel value exceed "i"?
No
Increment "tally" by 1.
Yes
Is "tally" ≥ "N"?
No
Trigger the output.

FIGURE 3

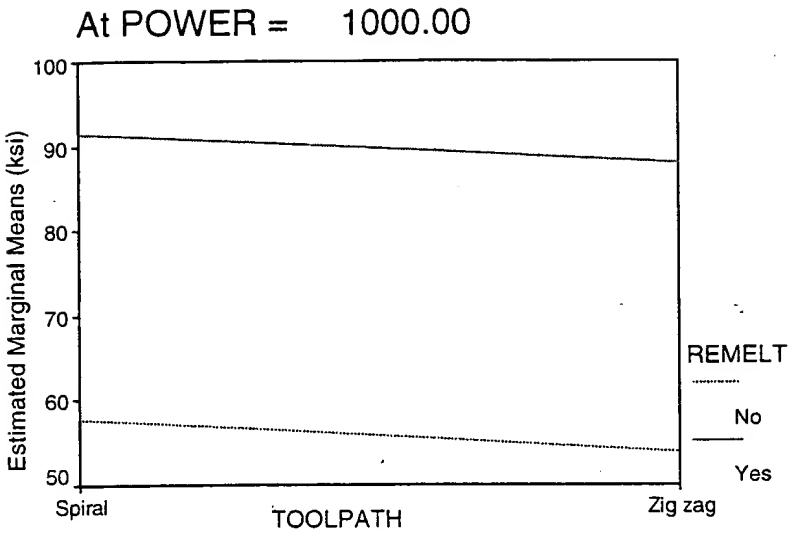

FIGURE 4A

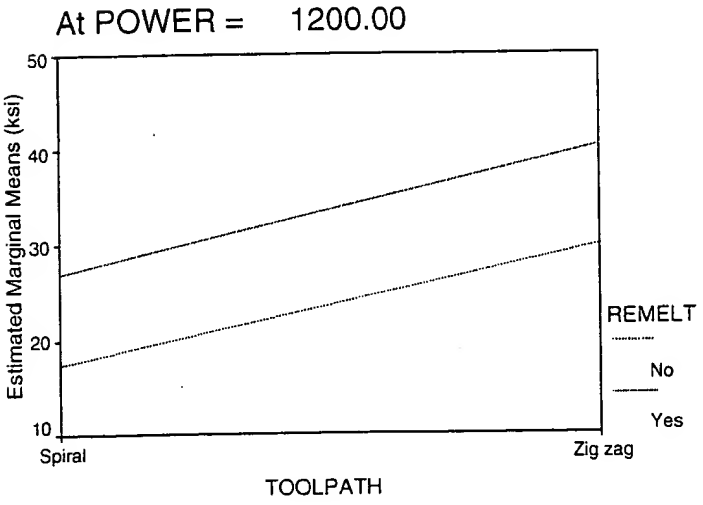

FIGURE 4B

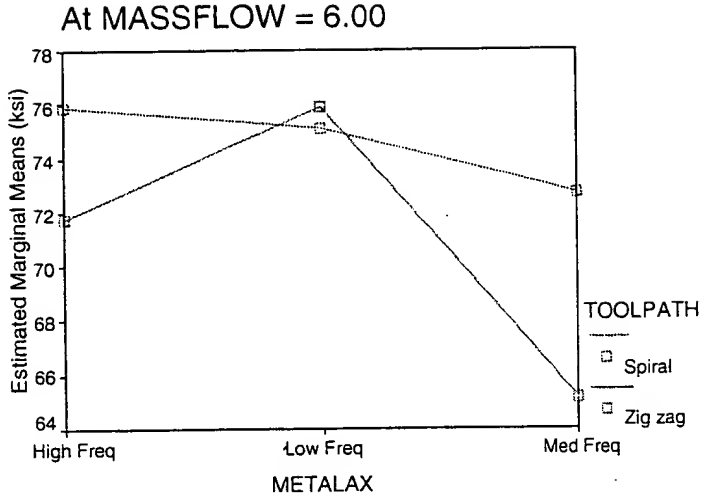

FIGURE 5A

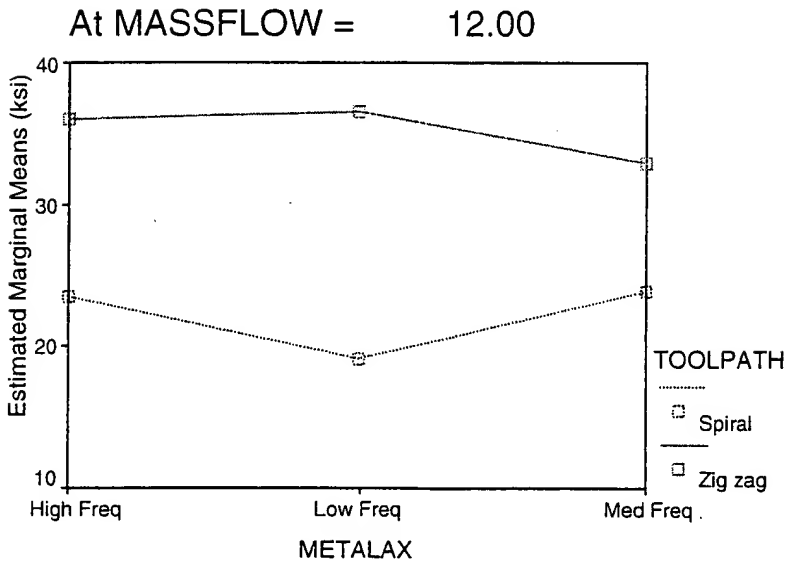

FIGURE 5B

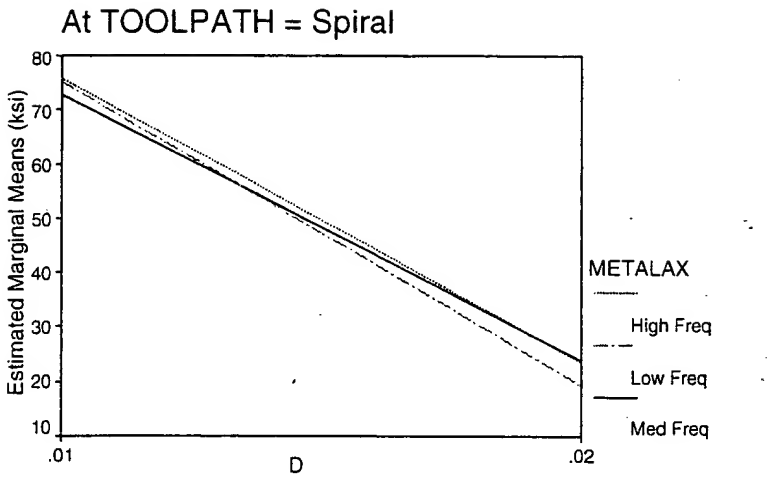

FIGURE 6A

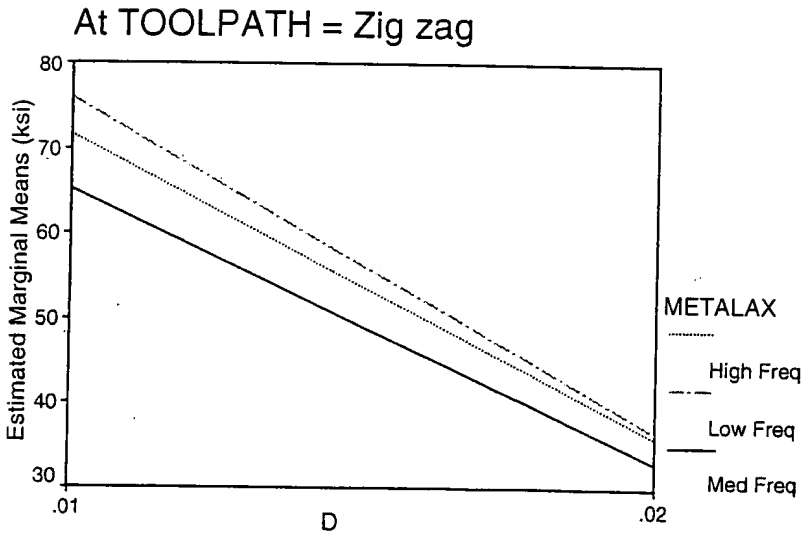

FIGURE 6B

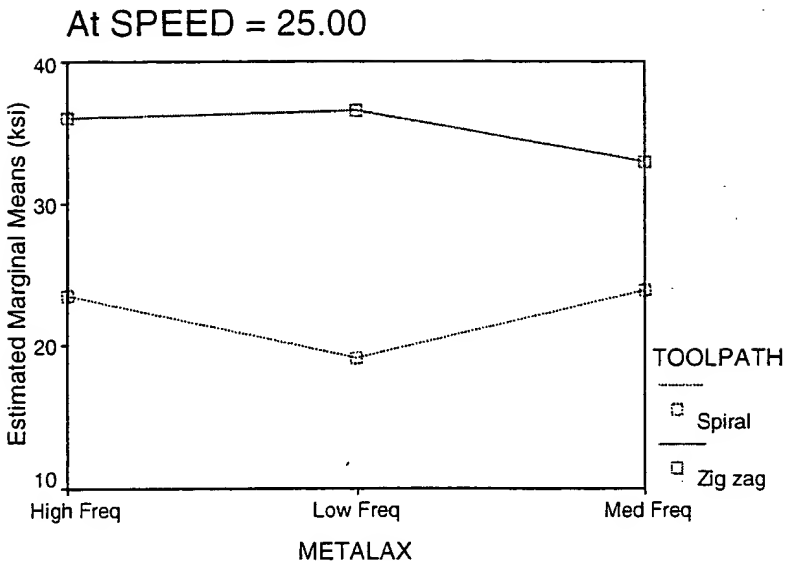

FIGURE 7A

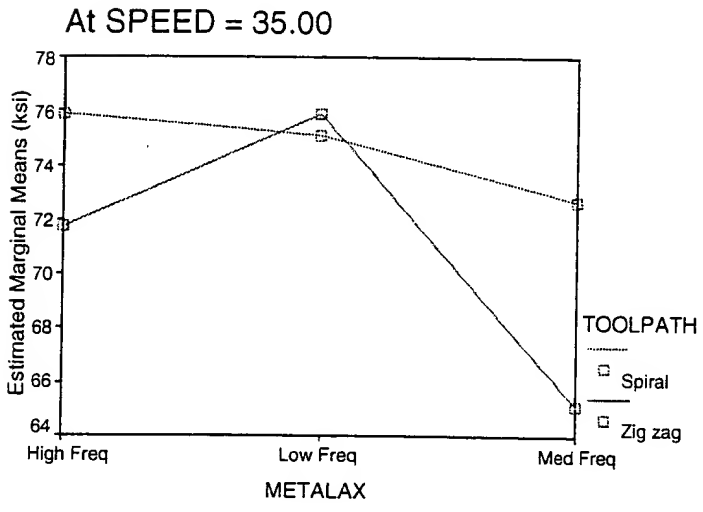

FIGURE 7B

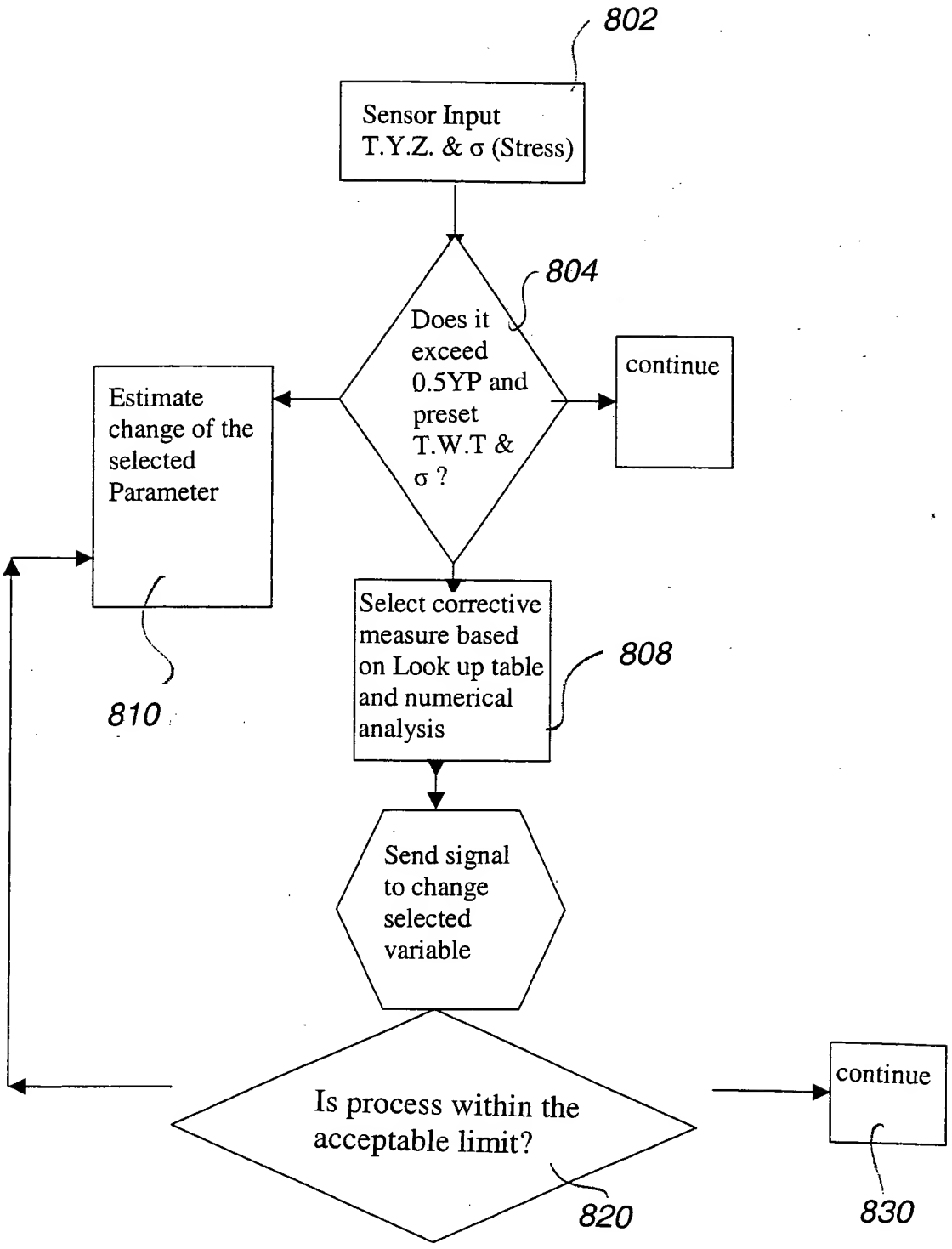
802
Sensor Input
T.Y.Z. & σ (Stress)
804
Does it exceed 0.5YP and preset T.W.T & σ ?
continue
Estimate change of the selected Parameter
810
Select corrective measure based on Look up table and numerical analysis
808
Send signal to change selected variable
Is process within the acceptable limit?
820
continue
830

FIGURE 8